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Little Calumet River



LITTLE  
CALUMET  
RIVER  
ADVISORY  
COMMITTEE'S

REPORT TO THE GOVERNOR

NOVEMBER 1, 1970

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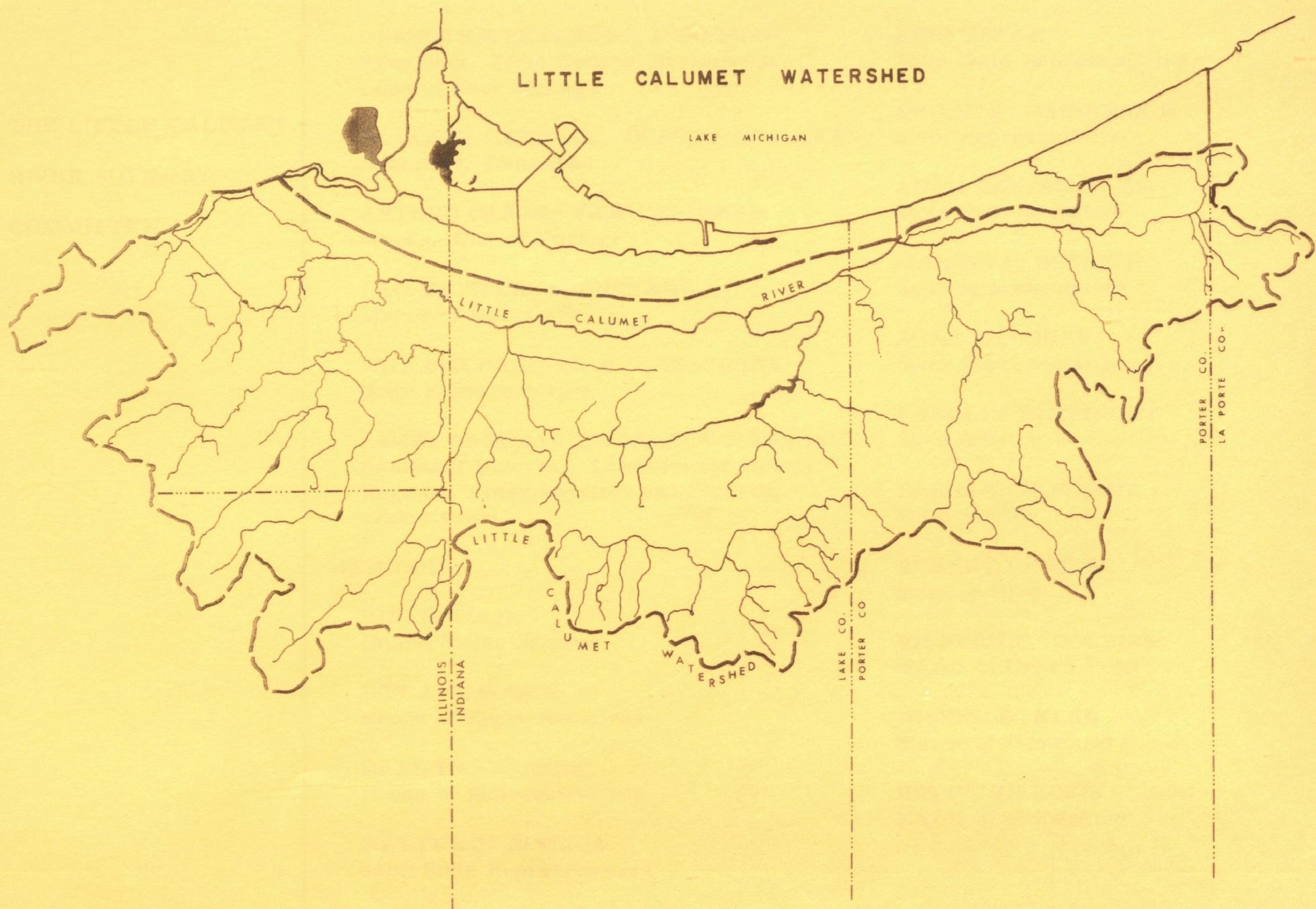
NOVEMBER 1, 1970

LAKE-PORTER COUNTY  
REGIONAL TRANSPORTATION  
& PLANNING COMMISSION



## LITTLE CALUMET WATERSHED

LAKE MICHIGAN



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GOVERNOR WHITCOMB'S  
CHARGE TO THE LITTLE  
CALUMET RIVER ADVISORY  
COMMITTEE

The Little Calumet River Advisory Committee is created for the purposes of:

- A. Coordinating and compiling the needs of the various communities along and adjacent to the Little Calumet River with reference to the problems of flood control, drainage, stream pollution, recreation and recreational navigation.
- B. Advising the Governor and the Department of Natural Resources on needed legislation and financial authorization or appropriations and reviewing the preliminary report of the Little Calumet River Flood Control - Recreational Navigation and Allied Purposes Feasibility Study.
- C. Advising the National Rivers and Harbors Congress on said project.
- D. Proposing to and advising the Governor and the Department of Natural Resources on funding participation.
- E. Conducting such other business as may be pertinent and relevant and recommended by the Governor from time to time.

The Committee shall submit a formal report to the Governor by November 1, 1970.

## ACKNOWLEDGEMENTS

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A P P E N D I X

## I. INTRODUCTION

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Northwest Indiana, one of the most highly industrialized areas of the nation, is presently undergoing an unprecedented period of growth and development. New and expanding industries are attracting new residents who, in turn, are creating greater demand for commercial and housing development. As in any densely populated, highly industrialized area, there are many deterrents to wise and desirable growth. The need for industrial, commercial and housing sites, for example, are generally given priority in the competition for urban land while the value of park and open space as integral parts of the urban landscape largely has been ignored. But this oversight has been recognized and, locally as well as nationally, immediate and prudent action is necessary to restore the kind of balanced environment all American communities desire.

The Little Calumet River, which flows through northern Lake and Porter counties, offers a unique opportunity in this respect. Although it appears to present an obstacle to continued development in the region, it could contribute significantly to a balanced environment. It potentially is an asset of incalculable value. Properly developed, the Little Calumet River could improve on the region's reputation as a sooty, bleak industrial area.

At present, however, the river is a liability, mainly because it has been ignored as valuable recreational open space and its flood plain erroneously thought to be a good piece of flat land to build a house on. At one time, the Little Calumet River was the source of basic living necessities and pleasant natural amenities. Today, it is considered by the Indiana Department of Natural Resources the state's most critical flood problem.

The rapid industrialization and uncontrolled growth of the region since the turn of the century have upset the natural flow and beauty of the river. Residential and commercial construction within the river's flood plain has led to a deteriorating drainage system. The river, never a babbling brook, has become a sluggish, muck-filled ribbon of water meandering through the heart of the region. Even moderate periods of rainfall cause some degree of flooding. Over the years, there have been several major floods, each more damaging than the last. Agricultural, commercial and manufacturing properties; public buildings and utilities; railroads, streets and highways; and residential property have sustained physical damage. The cost of repair in private and public dollars is immense, while the detrimental effects on health and aesthetics are impossible to calculate.

There have been 10 severe floods recorded on the Little Calumet River since 1908: 400 properties were flooded in 1954; 4,600 homes were flooded in 1964 and 8,000 homes in 1969. The 1968 flood forced the closing of Interstate 94 (Tri-State). Since 1900, the river has flooded an average of

once every 10 months. The need to improve the river has long been recognized, and studies toward that end can be traced back to at least 1925. More recent work indicates improved cooperation between Lake and Porter County officials, Indiana state officials and the U. S. Army Corps of Engineers.

In 1955, the Corps of Engineers was authorized to do a cost-benefit feasibility study on flooding of the Little Calumet River in Indiana and Illinois. This initial Corps study produced an unfavorable cost-benefit ratio, and Corps interest waned. In 1965, the House of Representatives Committee on Public Works passed a resolution calling for investigation into the possibilities of flood control and recreational navigation facilities on the Little Calumet River. Consequently, the Corps District Office in Chicago contracted with Schellie and Associates of Indianapolis to do a feasibility study on the river. The Corps is now in the process of evaluating the Schellie Report which was completed in preliminary form in March, 1970. The proposals in this latest study, herein after referred to as the "Schellie Report," are reviewed in this report.

Word that the Corps was again studying the river sparked interest locally, and the inclusion of recreational considerations in the feasibility study offered hope that something tangible might result. The Corps apparently was reacting to increased national pressure to consider the environment as well as the engineering problems before

embarking on large-scale projects. Unfortunately, concern for the environment has not changed Corps administrative practices. Originally, the Corps timetable on the Little Calumet River report called for District-level review to be completed, along with public hearings, in the summer of 1970. That date was extended to January, 1971, and, in October, there was an unconfirmed report that the date had been moved back another 18 months, to July 1972. At this writing, that report was being verified. The time interval from the approved District report to actual construction, however, extends well beyond July 1972. After the District Office has completed its work, the report must go through the Corps Regional Office, and Corps Headquarters in Washington, D. C., before Congress acts on an appropriate bill for the project.

There have been other studies of the Little Calumet River, but none with the implementive potential of those done by the Corps. The Corps can draw on federal funds to implement its own plans. All other agencies to study the river have lacked that one essential ingredient --- the ability to implement.

The Lake Michigan Region Planning Council produced a Design Study in 1968 for realizing the environmental potential of the river through correction of flooding and pollution problems and maximum use of the scenic and recreational opportunities prevailing along the river. The concept presented an imaginative blending of residential and recreational development into a narrow green-belt along the river. The study was a challenge to think unconventionally about taking full advantage of a unique opportunity.

The Report of Investigation of Recreational

Facilities Benefits of the Little Calumet River, Indiana, by the state Department of Natural Resources, also recommends a multi-purpose flood control project with adequate provision for small boat harbors and channel operation.

The Comprehensive Plan for Parks and Open Space for Lake County, Indiana, by William S. Lawrence and Associates, Inc., describes a scenic drive along a proposed river park corridor which, with its retention basin for flood control, recreational facilities and tree-dotted open space, offers a pleasant contrast to the heavily urbanized area surrounding it.

There is increasing concern among local and state officials for reaching a successful solution to the problems of the Little Calumet River. In 1969, Governor Edgar D. Whitcomb created, by Executive Order 6-69, the Little Calumet River Advisory Committee to study the needs of communities adjacent to the river relative to flood control, drainage, stream pollution, recreation and recreational navigation. Along with reviewing previous reports on the river, the Committee, composed of representatives of agencies and organizations concerned and involved in the proper development of the Little Calumet River, is charged with advising the Governor and the Department of Natural Resources on needed legislation, financial authorization, appropriations, and funding participation toward improving the river.

The charge was far-reaching, and as was discovered during the course of the Committee's work, required more expertise and time than were available. Nevertheless, the Committee attacked the various elements of the charge as best it could, producing a good deal of useful information and reaching several significant conclusions.

In order to study the various problems associated with the Little Calumet River, and to analyze the Schellie Report in terms of the needs of the communities along the river, the Advisory Committee was divided into three subcommittees: Flooding and Drainage, Stream Pollution and Recreation and Recreational Navigation. Other subcommittees were: Legislative, Finance, Communications and Implementation. The Advisory Committee was assisted in administration and preparation of this report, by the Lake-Porter County Regional Transportation and Planning Commission.



## II. PROBLEM IDENTIFICATION

### A. Flood Control and Drainage

For many years, the Calumet Region has been plagued with the problems associated with the heavy tributary runoff and the inadequate channel capacity of the Little Calumet River. A geometrically increasing pace of urbanization in the flood basin has contributed heavily to the dangers of overflow and the accelerating costs of flood damage. Insufficient fall of the river channel causes a sluggish stream flow resulting in forced bank overflow with temporary storage along the river during periods of heavy rain. The problems are aggravated by the intense concentration of transportation systems, bridge crossings, and urban and industrial development. These constrictions, together with debris accumulation in the channel, a tendency for silting, shoaling and vegetation growth, severely limit channel capacity, causing frequent and prolonged flooding of low lying areas adjacent to the river.

### B. Stream Pollution

The existing water quality of the stream is considered fair in the Burns Ditch - Burns Waterway reach. However, the westward flowing reach from Hart Ditch to the Cal-Sag Channel (Illinois) is highly polluted. The main sources of pollution along the Little Calumet are combined sewer overflows, agricultural runoff and industrial waste discharges.

Until pollution is significantly decreased, however, the river is not likely to attract any large number of people for recreational purposes, regardless of how it is landscaped or improved. Pollution control must go hand in hand with flood control and aesthetic enhancement.

### C. Recreation

In the highly developed Chicago - Northwest Indiana Area, the opportunities to acquire undeveloped land and inland waters to serve regional recreation needs are literally limited to the Little Calumet River flood plain. The only alternatives consist of isolated tracts of land close in to the highly concentrated population centers or at more remote locations along tributaries of the Little Calumet, namely Salt Creek, Deep River, Hart Ditch, Thorne Creek and the Calumet - Union Drainage Ditch. The latter are less accessible to the populated areas and do not offer the advantage of the Little Calumet Basin in providing the linkage of a river-front parkway with related intensive recreation use areas. Full maximization of the potential of the Little Calumet River and lands bordering it to supply recreational opportunities would greatly alleviate a critical recreation land shortage, a shortage cited by the Illinois Outdoor Recreation Plan as the most severe in the nation.

### D. Recreational Navigation

Calumet Region pleasure craft owners are in need of adequate navigation facilities. The only existing recreational navigation facilities

in the area are located at Portage, Indiana, along Burns Waterway, Burns Ditch, and the east-arm of the Little Calumet River.

Deteriorating channel conditions, i.e., sandbars at the entrance to Lake Michigan, silting and pollution, have led to steadily decreasing use of the channel for navigation purposes. This decrease will continue unless channel improvements benefiting navigation are initiated. Upstream, channel constrictions caused by bridges and culverts make recreational navigation impractical. Add to this the increased silting, pollution and debris, and recreational navigation upstream is clearly impossible.

### III. THE SCHELLIE REPORT

Because of the pressing need for flood control, recreational navigation, and land-based recreation improvements, the U. S. Army Corps of Engineers, as presented in the Schellie Report, envisions a combined improvement project in their Little Calumet River Basin Study. Although preliminary data indicates a favorable cost-benefit ratio for each of the aforementioned purposes, net maximization of benefits would be realized by a comprehensive multi-purpose project.

Tangible benefits accruing from the multi-purpose plan were measured, in terms of a reduction of flood damages in the flood plain, land enhancement, advanced bridge replacement, and the full utilization of recreational and navigational opportunities. In addition, the intangible advantage would include the elimination of human suffering, elimination of filth and disease that usually accompany floods, and improvement of the general welfare and security of the population within the flood plain. The resulting safety from floods would also allow the communities within the flood plain to grow and continue to attract further development.

The report selected a 200-year flood protection level as the optimum interval against flood recurrence. It was also determined that maximum net benefit would be realized with the utilization of a 200-foot wide navigation channel.

Proposed improvements consist of channel enlargement, levee, dam and breakwater construction, channel realignment, and recreational

facilities along the Little Calumet River from its mouth at Lake Michigan in Porter County, Indiana, to its junction with the Cal-Sag Channel in Cook County, Illinois, and approximately one mile of the Salt Creek branch east of Burns Waterway. A dam is proposed in the vicinity of the Indiana-Illinois state line, thus diverting the Hart Ditch flow to the Indiana portion of the improvement. However, a sustained flow of 10 cubic feet per second would be pumped in to the Illinois stream to preclude dry stream bed conditions.

Construction of recreational facilities of a Master Recreational Plan are also proposed for the entire shoreline of the Little Calumet River. This plan consists of development of 15 recreational nodes, with 10 in Indiana, at selected locations along the river (map, page 18 .) These nodes would be connected by a continuous waterway and hiking and biking trail system comprising a recreational corridor encompassing both sides of the river with access from the transportation network of the area. The size, location and details of the planned facilities in these nodes would be influenced by access and land use patterns in the area. Most of the nodes would include navigational berth facilities and other recreational land based facilities, and services. The substantial amount of earth excavated to provide the flood control channel would be utilized to create sculptured land forms along the river in order to raise the grade level of some of the node areas and to create recreation features such as sled slopes and an amphitheater. Little or no filling or grading is proposed along the Salt Creek area of the river so that the prevailing natural conditions would not be disturbed.

Also included in the Plan of development for Indiana is the replacement of 40 bridges and the lengthening of eight others. Of the total 52 bridges, only four are deemed adequate with no revision.

The average annual benefits attributed to the multi-purpose proposal are \$19,211,000, with \$13,019,000 accruing in Indiana and \$6,192,000 in Illinois. The average annual costs of implementing the improvement plan is \$6,400,000. Thus the ratio of cost to benefits is approximately 1:3.00, but varies according to river bottom width and flood recurrence interval. Specifically, the cost-benefit ratio varies from 1:2.80 to 1:3.12.

In order to establish the extent of non-federal participation required for funding the multi-purpose plan of improvement of the Little Calumet River, the Corps first allocated the estimated first costs and maintenance costs to the primary phases of the project, namely, flood control, recreation, and navigation. This allocation of cost to purpose is summarized in the following table:

	PURPOSE	FIRST COST	ANNUAL MAINT.
Indiana	Flood Control	\$27,907,000	\$ 82,000
	Recreation	16,117,000	274,000
	Navigation	24,646,000	46,000
	TOTAL	\$ 68,670,000	\$ 402,000
Illinois	Flood Control	\$18,390,000	\$ 80,000
	Recreation	16,679,000	165,000
	Navigation		
	TOTAL	\$ 35,069,000	\$ 245,000
Both States	Flood Control	\$46,297,000	\$ 162,000
	Recreation	32,796,000	439,000
	Navigation	24,646,000	46,000
	TOTAL	\$103,739,000	\$ 647,000

The estimated federal - non-federal breakdown of first costs for the proposed plan of improvement for the Little Calumet River are indicated in the following table:

#### FEDERAL

Indiana	\$ 40,308,000
Illinois	19,704,000
TOTAL	\$ 60,012,000

#### NON-FEDERAL

Indiana	\$ 28,362,000
Illinois	15,365,000
TOTAL	\$ 43,727,000

#### TOTAL PROJECT COST

Indiana	\$ 68,670,000
Illinois	35,069,000
TOTAL	\$ 103,739,000

The Corps assumed a 100-year project life as a basis for economic analysis, with estimated annual charges for the project based on an interest rate of 4.87 percent for both Federal investment costs. The period of project construction was estimated to be four years.



#### IV. SUBCOMMITTEE REPORTS

Each subcommittee evaluated pertinent sections of the Schellie Report. The following analyses, and most of the accompanying recommendations, were prompted by that evaluation. However, where the Schellie Report failed to investigate a problem or omitted a needed change, the subcommittees filled the gap. References to "east-arm" and "west-arm" are those portions of the river east and west of the Burns Waterway confluence.

##### A. Flooding and Drainage

###### 1. Analysis

- a. The proposed channel improvements in the Schellie Report would alleviate flooding along the Little Calumet River for approximately a 200-year flood recurrence.
- b. Channel improvements in the Little Calumet River valley would provide outlets and would allow for the development of drainage systems, but they do not provide these drainage systems. With proper development of ditches and field tile, the area north of the Little Calumet River within its drainage basin can be well drained.
- c. The channel improvements along the Little Calumet River will provide adequate tributary outlets and will allow for future flood control development along the southern tributary

system, recognizing increasing tributary flood hazards are resulting from increased run-off from land development along the tributaries.

###### 2. Recommendations

- a. The subcommittee recommends implementation of the Schellie Report to remove the flood potential along the Little Calumet River for approximately a 200-year flood recurrence.
- b. The subcommittee suggests the need for further study into the problems of flooding and drainage in the tributary valley systems:
  - (1) Tributary problems are not treated in the Schellie report but implementation of the Corps proposal is mandatory to the solution of the tributary valleys flooding problems.
  - (2) Vigorously support the applications made by Northwest Indiana communities through the Indiana Department of Natural Resources, requesting the U. S. Army Corps of Engineers to make additional Flood Plain Information Studies in three major tributary watersheds:
    - a) Little Calumet (east-arm) and tributary watersheds.

- b) Deep River-Turkey Creek Watershed
- c) Cady Marsh Ditch Area
- c. The Committee suggests to the Governor that the Department of Natural Resources prepare a proposal for the implementation of flood control/recreation and allied purposes projects in the tributary valleys of the Little Calumet River such that these projects should be undertaken immediately following the channel improvements along the Little Calumet River proper.
- d. State and federal water quality standards and regulations are adequate to provide water which would support aquatic life and permit total body contact recreation.
- e. Water quality standards have had little effect due to lack of enforcement.
- f. Water quality regulations are presently being used to pressure, but not shutdown, polluters into providing a higher quality effluent.

## 2. Recommendations

### B. Stream Pollution

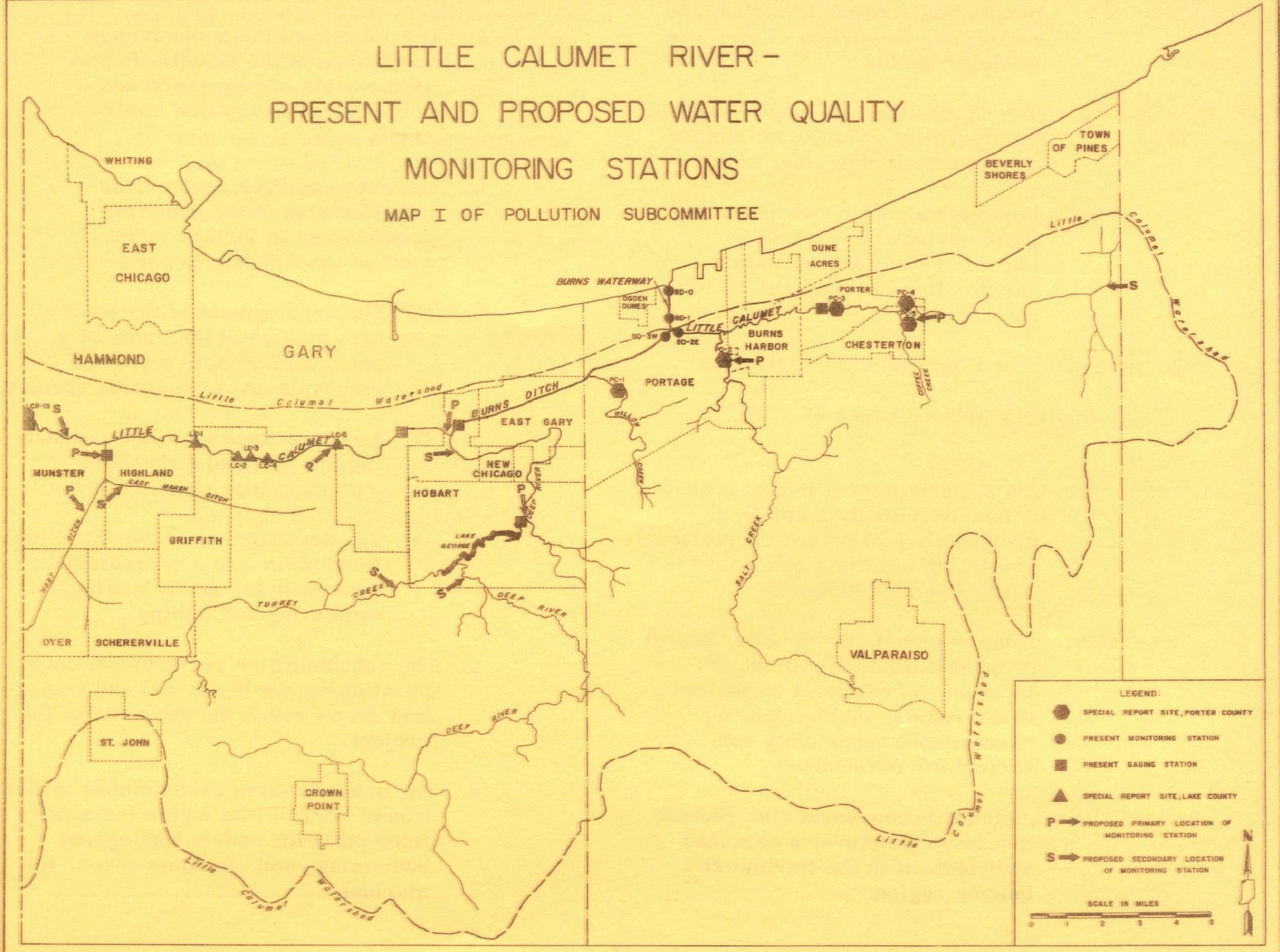
#### 1. Analysis

- a. The Schellie Report does not deal with the problem of pollution in the Little Calumet River.
- b. Subcommittee investigation reveals a significant amount of pollution present in the river.
- c. Present pollution levels are caused by the lack of, or inadequate, sewage treatment, precipitation runoff from agricultural areas and industrial effluent in that order.

- a. Conduct a complete, in depth study of water pollution of the Little Calumet River and its tributaries.
- b. Create constructive liaison and coordination with the Illinois Commission on Operation Little Calumet River.
- c. Appraise the effectiveness of existing water quality legislation.
- d. Create a Little Calumet River Authority whose responsibility would include the enforcement of the existing water quality standards as established by the Indiana Stream Pollution Control Board.
- e. Establish additional water quality monitoring stations on the Little Calumet River. (Map, page 13)

LITTLE CALUMET RIVER -  
PRESENT AND PROPOSED WATER QUALITY  
MONITORING STATIONS

MAP I OF POLLUTION SUBCOMMITTEE



- f. Expand the scope of water quality monitoring stations to include the entire Indiana portion of the Lake Michigan Basin.
- g. Investigate alternate ways of testing water quality which could include a local monitoring laboratory.
- h. Establish a public awareness program designed to explain the intricacies of water pollution and its effect on the total ecological environment.

#### C. Recreation and Recreational Navigation

##### 1. Analysis (Maps, pages 17 - 19)

- a. The Schellie Report indicates that it is economically feasible to provide recreation and recreational navigation facilities on the Little Calumet River.
- b. If implemented, the Schellie Report proposals would significantly increase recreational facilities in the region, thus improving recreational opportunity and variety for residents.
- c. Implementation would also restore, to a large measure, a balanced environment in the Northwest Indiana region.

#### 2. Recommendations

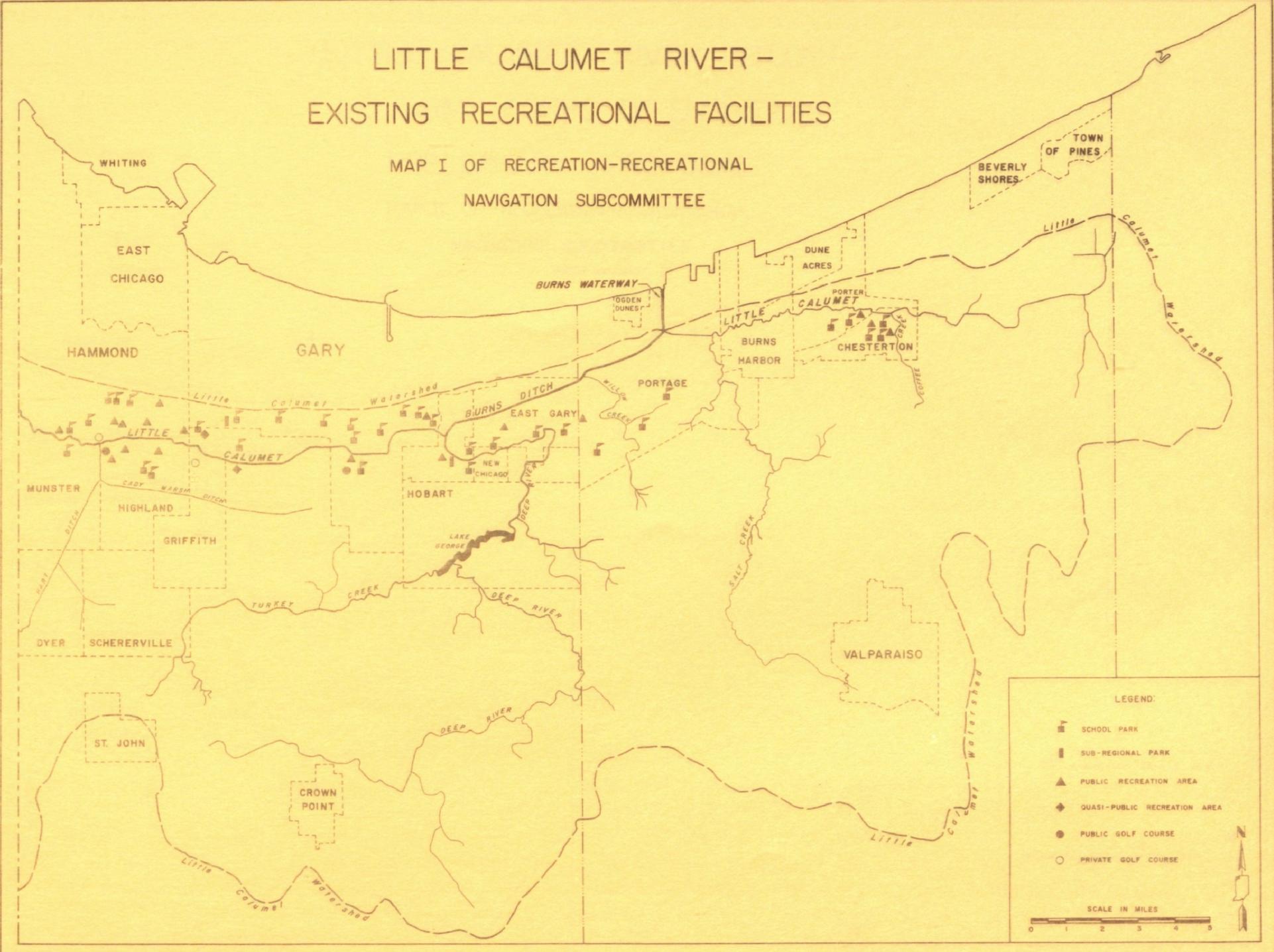
- a. The subcommittee recommends acceptance of the Schellie Report as the basis of recreation and recreational navigation improvements.
- b. The subcommittee recommends consideration of the following possibilities in further refinement of the Schellie Report:
  - (1) The development of the east-arm portion of the river as a sport fishery with a special emphasis on salmonoide species.
  - (2) A recreational corridor connecting the National Lakeshore with the Little Calumet River.
  - (3) The development of the Salt Creek flood plain into a recreational reservoir for small boating, swimming and fishing.
- c. The subcommittee recommends incorporating unique historical and ecological areas within the authority of the project.
- d. The subcommittee recommends utilization of borrow pits within the river's flood plain for sports fishing and swimming, and, in some cases, for marinas.

- e. The subcommittee recommends imposing a maximum limit on horsepower of boats on the upper reaches of the west-arm of the river.
- f. The subcommittee recommends that one of the recreational nodes be easily accessible to the region's major transportation network, and be developed primarily to serve non-local tourists.
- g. The subcommittee recommends the immediate acquisition of available land, thereby reducing the possibility of non-compatible use.
- h. The subcommittee recommends the formation of an agency to continue studies on the improvement, development and utilization of the Little Calumet River.



# LITTLE CALUMET RIVER - EXISTING RECREATIONAL FACILITIES

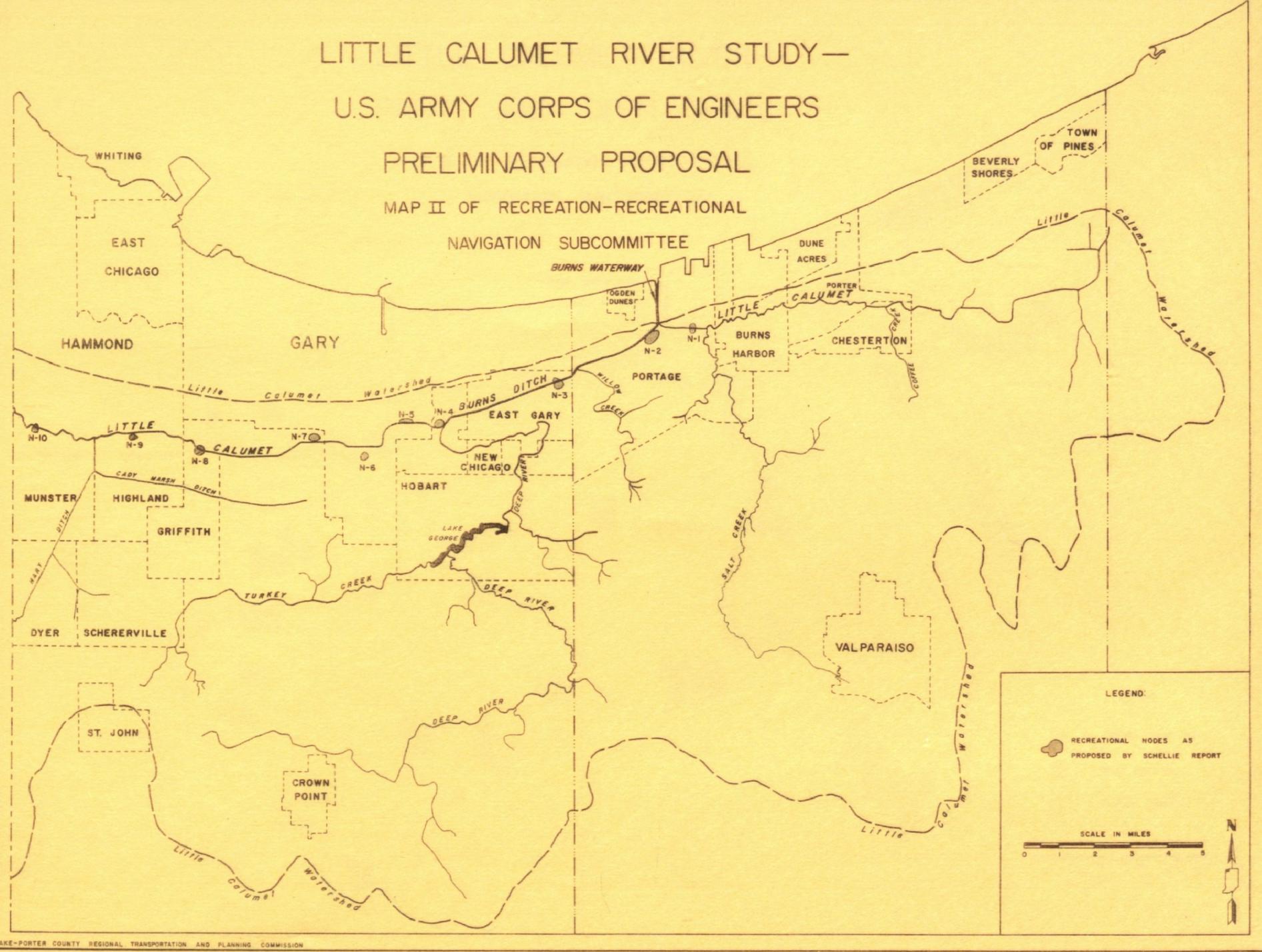
MAP I OF RECREATION-RECREATIONAL  
NAVIGATION SUBCOMMITTEE



LITTLE CALUMET RIVER STUDY—  
U.S. ARMY CORPS OF ENGINEERS  
PRELIMINARY PROPOSAL

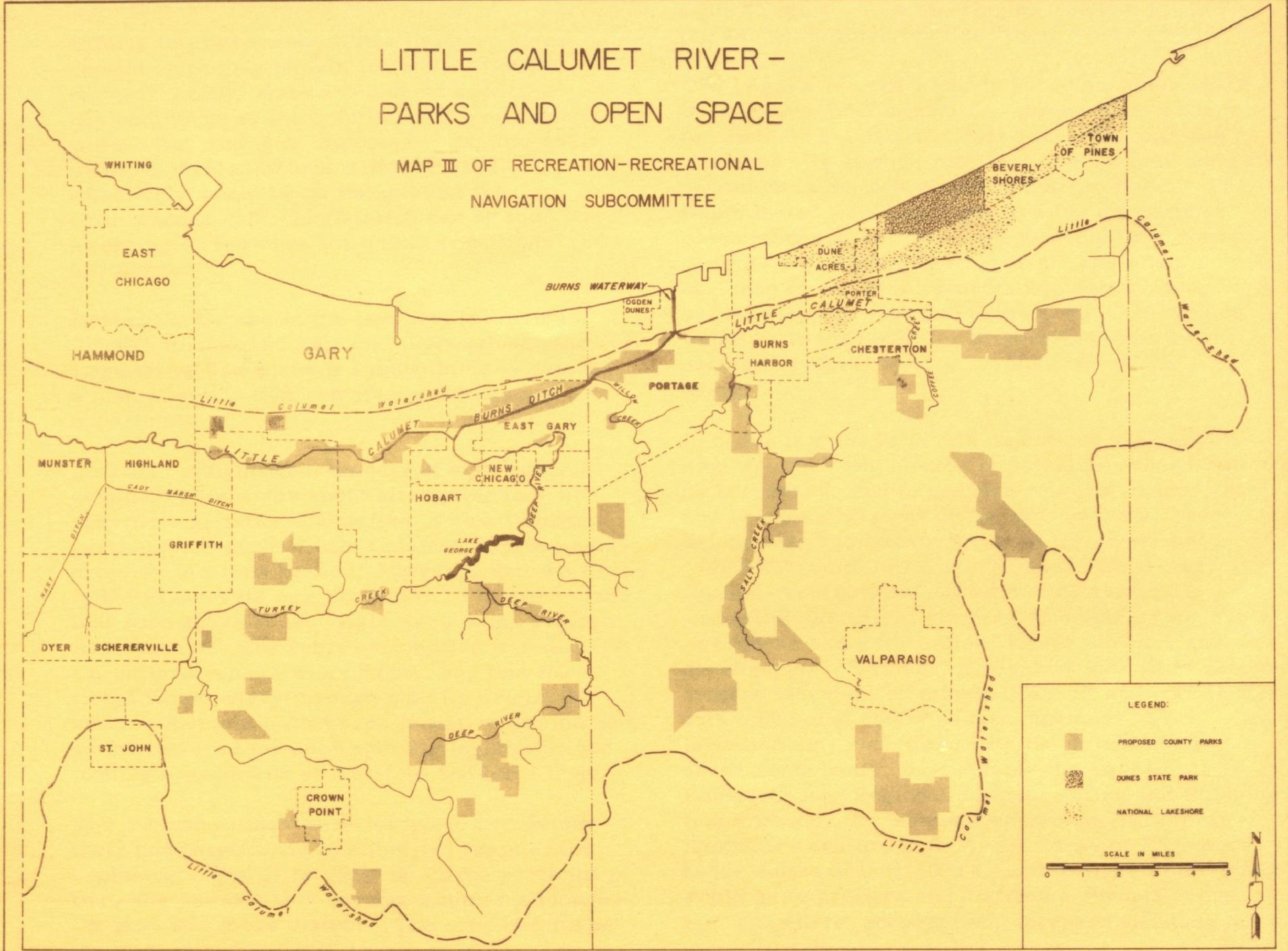
MAP II OF RECREATION-RECREATIONAL

NAVIGATION SUBCOMMITTEE



# LITTLE CALUMET RIVER - PARKS AND OPEN SPACE

## MAP III OF RECREATION-RECREATIONAL NAVIGATION SUBCOMMITTEE



## V. JOINT REPORT OF THE LEGISLATION AND FINANCE SUBCOMMITTEES

Efforts to improve the Little Calumet River depend on proper legislation and sufficient money. Local, state and federal agencies can contribute to the solution of the river's woes. But timing is important: too much money allocated before it can be used effectively would be as wasteful as too little when it can. Legislation can be too sweeping or too weak for actual conditions and needs.

During the course of the last several months, through formal and informal discussions, the Legislative and Finance subcommittees evolved a plan of action that can meet demands and opportunity.

Initially, a significant amount of staff and subcommittee time was spent attempting to draft specific legislation and define in detail funding participation in the Little Calumet improvement project. As time passed, however, and the Corps failed to meet its own deadlines, it became clear that such specific proposals were being evolved in a vacuum. The basic assumption was that the Corps involvement was pivotal, and that the Corps would carry through with its originally stated timetable. As Corps initiative diminished, so did the need for such specific legislation and funding breakdowns at the state and local level.

The subcommittees were forced to reconsider their positions, and, in effect, to begin at the beginning. Unable to count on Corps participation, the job suddenly became simpler although the goal was more distant. The subcommittees

realized their jobs were becoming more closely related, and it was therefore determined to issue a joint report. At a meeting on October 12, 1970, the subcommittees finalized their work.

The Legislative and Finance subcommittees share the recommendation that legislation is necessary to establish a Little Calumet River Commission as a further step toward realizing quality environmental conditions in the Little Calumet River Basin. The Commission would be organized for the purpose of advising and informing the state, cities, towns, counties, the federal government, and other agencies on the development and coordination of plans for the basin. Further, the Commission would be responsible for promoting public awareness and support for the development of the basin.

In order to accomplish its objectives the Commission would be empowered to establish subcommittees as necessary, and to prepare reports, maps, charts and recommendations on the development, redevelopment, and improvement of the river basin. These subcommittees might include flood control, finance, recreational facilities, recreational navigation facilities, conservation, pollution, public awareness and information, future land use and development, drainage, and sanitation. It is recommended that the Commission consult and coordinate with other plan commissions, agencies, or jurisdictions, concerned with the development of the river basin, particularly the Lake-Porter County Regional Transportation and Planning Commission, the Indiana Department of Natural Resources and the U. S. Army Corps of Engineers. Other duties of the Little Calumet River Commission would be to prepare and distribute reports, encourage interstate cooperation, prepare and submit

an annual report to the Governor and General Assembly by September 1 of each year, provide legislative recommendations, and develop citizen participation in activities related to the improvement of the river basin. Proper functioning of the Commission would necessitate granting it the authority to enlist professional, technical, and secretarial staff aid as required.

It is recommended that the Little Calumet River Commission be established by the Governor and the General Assembly. The Commission would be composed of five private citizens appointed by the Governor. Members of the Commission would receive no salary but be paid for expenses incurred in the performance of their duties.

To provide for the operation of the Little Calumet River Commission, the subcommittees recommend that a figure approaching \$250,000 for a biennium be appropriated by the General Assembly. This appropriation would allow the Commission to execute its duties.

These recommendations and proposals are, of course, subject to revision, but they represent proposals which the Legislative and Finance subcommittees collectively believe can contribute to improving the present situation in the Little Calumet River basin.

As the situation changes, further legislation and funding methods can be developed. The situation is in flux, and to meet changing opportunities and demands, flexibility at the state and local level are needed.

## VI. CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of the Little Calumet River Advisory Committee have been generated by subcommittee work, and most have been stated in preceding pages. Of the dozens of subcommittee recommendations, some, obviously, are more significant than others. The following recommendations are those which the Advisory Committee believes require priority action if the long-range goal of restoring and improving the Little Calumet River is to succeed.

In attempting to fulfill the charge, it quickly became apparent that limited time and expertise, and lack of funds, would restrict the Advisory Committee's scope. Within those limitations, however, much has been accomplished. Yet the Advisory Committee believes that rather than an end, this report represents the beginning of a fruitful effort to bring into balance the environment of Northwest Indiana.

Two of the recommendations leading to that goal go hand in hand, and, the Advisory Committee believes, are crucial to the entire project. First, the Indiana General Assembly, in 1971, should create a permanent Little Calumet River Commission to be appointed by the Governor.

Second, that approximately \$250,000 biennially be appropriated for operations of that Commission. Such an agency could work for improvement of the river, coordinate plans and activities

of other agencies concerning the river, study specific problems, such as pollution, encourage prudent land use along the stream and provide a rallying point for local citizens.

The Advisory Committee also recommends that the entire Little Calumet River Basin be included in the Commission's responsibility. To a large extent, the tributaries of the Little Calumet River determine its quality and flow. An industry or subdivision many miles from the river can have a dramatic impact on its waters. The basin is all of a piece and cannot be considered otherwise.

The Advisory Committee further recommends that all efforts be made to improve, at local, state and national levels, cooperation between Indiana interests and the Corps of Engineers and the Illinois Commission on Operation Little Calumet River. This is a sphere in which the proposed Commission could play a vital role, particularly in establishing local liaison with Illinois and the Corps. In fact, a good working relationship has been established with the Illinois counterpart, and, if created, an Indiana Commission could formalize coordination. Unfortunately, coordination and cooperation with the Corps has proven frustrating to initiate. After a meeting with Corps officials in Chicago, the promised information and cooperation was not forthcoming. The Advisory Committee made every effort to work with the Corps, but, perhaps for a good but unknown reason, the Corps did not reciprocate.

The problems of the Little Calumet River have been exacerbated by construction of homes and businesses in the flood plain of the river. Therefore,

the Advisory Committee recommends that local and state agencies initiate a program of flood plain zoning that would control land use along its course. Again, the proposed Commission could play a significant role in this effort.

Pollution is a problem national in scope but local in cure. While adequate water quality laws exist at the state level, they have had little effect on water quality in the Little Calumet River. Therefore, the Committee recommends that these regulations be enforced more stringently, and a concerted effort be made to: 1) force improvements in sanitary district operations and in industrial effluents; 2) encourage and expedite the formation of conservancy districts for those areas lacking sanitary sewers, and 3) urge more prudent use of agricultural fertilizers and pesticides.

Finally, the Advisory Committee recommends that a functional recreation corridor connecting the National Lakeshore and the east-arm of the Little Calumet River be created. Such a corridor would integrate two major recreation areas into one continuous green-belt devoted to hiking, biking, camping and picnic area.

The Advisory Committee concludes that the Schellie Report appears to be a generally feasible and desirable improvement, provided there is massive federal backing, through the Corps of Engineers. If the Little Calumet River is to be improved through local and state funds, however, such grandiose plans would have to be revised, either through cutting back on improvements or prolonging the time span. At the same time, it must be recognized that the Schellie Report is only one approach to

solving the problems. Its primary value is in demonstrating the practical economic advantage of providing flood control and recreation along the river. Other approaches are possible, however, and should not be ignored.

The Little Calumet River offers a unique opportunity and challenge to transform a present liability into a future asset. The job can be done, and some steps have been taken toward that goal. More must follow.

A P P E N D I X



LITTLE CALUMET RIVER  
FLOODING AND DRAINAGE  
SUBCOMMITTEE REPORT

DR. MARK RESHKIN  
Chairman  
  
MRS. EDITH ROOT  
Co-Chairman  
  
GREGORY F. SMUTKO  
Staff

MEMBERS

GEORGE APPLEGATE  
LLOYD CUTLER  
EMELINE ENSWEILER  
DONALD EWEN  
WILLIAM FIFIELD  
TIMOTHY P. GALVIN, JR.  
RALPH JULIAN  
ROBERT KRULL  
NEIL MORROW  
JAMES M. MUNDELL  
WILLIAM TANKE

## I. Introduction:

The Co-Chairmen of the Sub-Committee were among the members of the Governor's Committee present at a meeting with the U. S. Army Corps of Engineers in Chicago on January 27, 1970. Corps personnel reviewed the Schellie report (a contractual report on the redevelopment of the river valley) and their current status in appraisal and modification of the proposal. A resultant positive cost-benefit ratio was indicated and procedures for taking this study through the chain of command were outlined. It became apparent that the "final" Corps report would be some time in coming--possibly delayed until the third quarter of 1970.

The Flooding and Drainage Sub-Committee recognized that its responsibility was to consider whether the threat of flooding in the valley would be alleviated by the proposed project and would the redeveloped valley accomodate the entire drainage of the tributary systems. The Sub-Committee recognized its responsibility to report to the Governor's Committee promptly so that other Sub-Committees might pursue their assignments. It was recognized that the Sub-Committee was dealing with the Corps interim appraisal of the Schellie Report, however, time considerations left little choice but to evaluate the information on hand.

The Sub-Committee was most fortunate in securing the advice of Mr. Victor Wenning, Division of Water, Indiana Department of Natural Resources. Mr. Wenning, as many of you know, has been intimately involved for over a decade in the efforts to alleviate flooding and drainage problems in the Little Calumet River valley. Mr. Wenning reviewed various studies

and the Schellie report for the Sub-Committee on February 13, 1970.

Based on previous studies, (such as the Little Calumet River Study by the Lake Michigan Regional Planning Council; the Hydrologic Report, Little Calumet River and Tributaries, by Horner & Shifrin, Inc.; Value of Potential Development in the Little Calumet River Flood Plain, by the Purdue Calumet Development Foundation; Recreational Facilities Benefits Little Calumet River, Indiana by the Indiana Department of Natural Resources, Division of Water; and other reports by various local agencies and interest groups,) and armed with information from the Corps and professional advice from Victor Wenning, the Sub-Committee agreed upon the following recommendations to be presented to the Governor's Committee. The Sub-Committee has restricted itself to recommendations dealing only with flooding and drainage.

## II. Analysis of the Corps Proposal (Schellie Report) and the Sub-Committee Studies.

### Analysis:

- a. The proposed channel improvements as outlined in the Schellie report would alleviate flooding along the Little Calumet River for approximately a 200 year flood recurrence.
- b. Channel improvements in the Little Calumet River valley would provide outlets and would allow for the development of drainage systems, but they do not provide these drainage systems. With proper development of ditches and field tile, the area north of the Little Calumet River within its drainage basin can be well drained.

c. The channel improvements along the Little Calumet River will provide adequate tributary outlets and will allow for future flood control development along the southern tributary system, recognizing increasing tributary flood hazards are resulting from increased run-off from land development along the tributaries.

### III. Recommendations:

a. The Sub-Committee recommends implementation of the Schellie report to remove the flood potential along the Little Calumet River for approximately a 200 year flood recurrence.

b. The Sub-Committee suggests the need for further study into the problems of flooding and drainage in the tributary valley systems:

1. Tributary problems are not treated in the Schellie report but implementation of the Corps proposal is mandatory to the solution of the tributary valleys flooding problem.
2. Vigorously support the applications made by northwest Indiana communities, through the Indiana Department of Natural Resources requesting the U. S. Army Corps of Engineers to make additional Flood Plain Information Studies on three major tributary watersheds:
  - (a) The tributaries of the Little Calumet (East Arm)

(b) Deep River - Turkey Creek Watershed  
(c) Cady Marsh Ditch Area

c. The Committee suggests to the Governor that the Department of Natural Resources prepare a proposal for the implementation of flood control / recreation and allied purposes projects in the tributary valleys of the Little Calumet River such that these projects should be undertaken immediately following the channel improvements along the Little Calumet River proper.

### IV. Summary:

The Sub-Committee recommends immediate implementation of the Schellie proposal:

- a. to remove the flooding threat along the Little Calumet River, and,
- b. to provide outlets for the tributaries.

Increased run-off resulting from land development in the southern tributary watershed presents flooding problems in these valleys. The Sub-Committee therefore recommends study and development plans to solve flooding problems in the tributary system.

Implementation of the Corps proposal is only the first step toward solving the flooding and drainage problems of the Little Calumet River Watershed.

# MINUTES OF MEETINGS OF THE FLOODING AND DRAINAGE SUB-COMMITTEE

Minutes of a meeting of the Sub-Committee on Flooding and Drainage of the Little Calumet River Advisory Committee held on January 7, 1970, at 10:00 a.m. in the offices of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Chairman Dr. Mark Reshkin.

2. The Chairman made introductions.

3. Members Present: Mark Reshkin, Edith Root, Lloyd Cutler, Don Ewen, Timothy Galvin.

Also present: Jody Katz, Jerry Frick, Gregory Smutko, of the Regional Planning Commission staff.

4. Dr. Reshkin read the Governor's charge to the Little Calumet River Advisory Committee - he discussed the 1965 report done by the Army Corps of Engineers about flooding problems in Indiana and Illinois. He also stated that there are other problems that this report does not mention and possibly this committee could add to it.

He also is glad to see that the committee has available the Regional Planning Commission's avenues of gaining information from the Corps of Engineers. The committee is to respond to the Corps of Engineers and report to the Governor by 1 October, 1970. In summary the Governor's charge is to analyze the report, when received, and report back to him.

Dr. Reshkin also brought up the Little Calumet River Study. He also stated that Victor Wenning of the Division of Water, Department of Natural Resources would be of assistance to guide us in doing hydrological studies. He will attend meetings and be an advisor to this committee.

Mr. Galvin suggested that nothing beyond problem identification can be done until the Corps of Engineers finishes reviewing their report. The question was brought up - what if the Corps does not get their report done or what if we cannot procure the copies?

The Committee must pressure the Corps to complete review. Dr. Reshkin then opened the floor for discussion. He suggested that proposals be held in reserve for a while.

5. Don Ewen discussed his feelings to the Sub-Committee. He felt with general concurrence, that the Corps of Engineers is stalling on this report.

Dr. Reshkin has several publications that he wants the sub-committee to review and comment on. One is the 1965 report from the Corps of Engineers and the other is the Little Calumet River Study. The Committee must state what the situation is and identify the problems.

6. Gregory Smutko of the Commission staff displayed a chart showing the relationship of the sub-committee to the Little Calumet River Advisory Committee and the Lake-Porter County Regional Transportation and Planning Commission.

7. Dr. Reshkin read the sub-committee work program. He also read the goals - discussion of situation as it stands and future probable flood damage.

8. Then came a discussion on the days and times of meetings. The Chairman directed Gregory Smutko to take a telephone poll of each committee member and then we will go from there. Notification will be sent out for the next meeting.
9. On motion of Galvin, seconded by Cutler, the meeting was adjourned.

GREGORY F. SMUTKO  
Acting Secretary

Minutes of a meeting of the Flooding and Drainage Sub-Committee of the Little Calumet River Advisory Committee held on February 13, 1970, at 9:30 a.m. in the Conference Room of the Regional Planning Commission, 9290 Taft Place, Crown Point, Indiana.

1. The meeting was called to order by Chairman Dr. Mark Reshkin.
2. The Chairman reviewed the last committee minutes of January 7.
3. Members and guests present: Dr. Mark Reshkin, Gregory Smutko, William Fifield, Victor Wenning, Don Ewen, Lloyd Cutler, Emeline Ensweiler, James Ranfranz, Gary Tyler, Robert Gurnham.

4. Mr. Ranfranz gave a summary of the meeting with the U.S. Army Corps of Engineers in Chicago on January 27, 1970.
5. Mr. Victor Wenning of the Division of Water, Indiana Department of Natural Resources commented on the Schellie report as it affects:
  - flooding
  - tributary drainage
  - recreation
  - recreational navigation
  - pollution
6. Membership discussed implications of urbanization on tributary flooding and drainage.
7. The Chairman recommended that this sub-committee be the first of the sub-committees to respond to the Corps of Engineers (Schellie) proposal. The Chairman suggested further that this sub-committee report would:
  - a. affirm that the channel improvements proposed by the Schellie report would alleviate flooding along the Little Calumet River for a 200 year flood recurrence.
  - b. suggest the need for further study into the tributary flooding and drainage problems and the ensuing implementation of solutions to these problems. Tributary problems are not treated in the Schellie proposal, but Little Calumet channel improvements allow tributary improvements for these purposes.

8. The Chairman stated that the sub-committee report outline will be formulated at the next meeting and the report should be completed by April, 1970.
9. The next meeting will be March 13, 1970 at 9:30 a.m. in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.
10. The meeting was adjourned.

GREGORY F. SMUTKO

Minutes of a meeting of the Sub-Committee on Flooding and Drainage of the Little Calumet River Advisory Committee held on March 13, 1970 at 9:30 a.m. in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Chairman Dr. Mark Reshkin.
2. The minutes of the previous meeting were approved without correction.
3. Members present: Mark Reshkin, Greg Smutko, Victor Wenning, Harold Kracht, Edith Root, Don Ewen, Lloyd Cutler.

Also present: Harold Wenning, Marion Bushemi, H.G. Frick, Jody Katz, George N. Hall, Nancy Banks.

4. Since the proposed Little Calumet channel improvements will alleviate flooding for a 200 year flood recurrence, the Chairman suggested that the sub-committee direct its attention to the tributaries.
5. The Chairman referred to a presentation given by Mr. Harold Kracht, of the Soil Conservation Service, pertaining to the Deep River - Turkey Creek watershed.
6. Mr. Kracht gave a presentation on the Deep River-Turkey Creek watershed flooding problem. He stated that treatment of this problem would be a three phase endeavor:
  - a. Land Treatment
  - b. Water Storage Reservoirs
  - c. Channel Improvements
7. Members and guests were introduced.
8. Mr. Kracht showed six possible locations for proposed reservoirs, noting the potential of multiple use (wildlife, recreation).
9. Dr. Reshkin stressed water quality, which would be suitable for total body immersion, contrasting water quality of the Little Calumet, suitable only for partial immersion.
10. Mr. Wenning of the Indiana Department of Natural Resources, Division of Water, stated that since this sub-committee has indicated a desire for further study to be made of the tributary watersheds, the Department of Natural Resources has prepared applications requesting the U.S. Army Corps of Engineers to make a Flood Plain Information Studies of the three major tributary watersheds.
  1. The tributaries of the east arm of the Little Cal
  2. Deep River - Turkey Creek area
  3. Cady Marsh Ditch area

11. Discussion by members of inter-relationships of the Little Calumet River and its tributaries.
12. Chairman called for a resolution by the sub-committee on Flooding and Drainage to support the applications to the U. S. Army Corps of Engineers.

Motion by Mr. Ewen, seconded by Mr. Cutler vote was unanimous and the motion carried.
13. Dr. Reshkin volunteered to write an outline of a draft report of this committee's recommendations for review at the next meeting. Hopefully, the report will be ready for submission to the Executive Committee by May.
14. The next meeting will be at 9:30 a. m. in the Conference Room of the Regional Planning Commission on April 10, 1970.
15. The meeting was adjourned.

GREGORY F. SMUTKO  
Acting Secretary

Minutes of a meeting of the Sub-Committee on Flooding and Drainage of the Little Calumet River Advisory Committee held on Friday, April 10, 1970, at 9:30 a. m. in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Co-Chairman, Edith Root.
2. The minutes of the previous meeting were approved as published.

3. Members present: Edith Root, Gregory Smutko, Victor Wenning, Emeline Ensweiler, Neil Morrow, William Kwan, Lloyd Cutler.
4. The rough draft of the Flooding and Drainage Sub-Committee report was reviewed by the members, with suggestion of changes and additions.
5. The final report will be prepared by Dr. Reshkin, Mr. Wenning, and Mr. Smutko, and will consist of:

- a. a cover sheet
- b. Sub-Committee membership list
- c. report text
- d. appendix - minutes of the sub-committee minutes

When the Flood Plain Information Studies application package has been completed, it will be added as an addenda appendix to the Sub-Committee report.

6. Members discussed the relationship of the Indiana Little Calumet River Advisory Committee to the Illinois Little Calumet River Advisory Committee.
7. Mr. Smutko stated that copies of the final report will be mailed to the members of the Flooding and Drainage Committee.
8. A meeting of the entire Little Calumet River Advisory Committee is tentatively scheduled for May 6th.
9. The meeting was adjourned.

GREGORY F. SMUTKO  
Acting Secretary



LITTLE CALUMET RIVER  
POLLUTION SUB-COMMITTEE

MEMBERS:

BRYCE BILLINGS  
Chairman

MILLIE PILOT  
Co-Chairman

H. GERALD FRICK  
Staff

ELMER BUDLOVE

ANNA MALONEY

CLEO DUNCAN

STEVE W. MANICH

GLENN RUTLEDGE

WILLIAM C. RHODES

## I. INTRODUCTION

On May 9, 1969, Governor Edgar Whitcomb submitted a charge to the Little Calumet River Advisory Committee to study the needs of the various communities adjacent to the Little Calumet River in relation to flood control, drainage, stream pollution, recreation and recreational navigation. Accordingly, appropriate subcommittees were formed.

On January 8, 1970, the Stream Pollution Subcommittee met for the first time and formulated the following charge:

1. Compile a list of known sources of water pollution contributors to the Little Calumet River.
2. Map present or anticipated pollution control or measuring devices on the Little Calumet River.
3. List known types of pollutants and quantitative/qualitative estimates added to the Little Calumet River.
4. Evaluate, to the best of the subcommittee's ability, any proposals, reports or studies pertinent to the water pollution problem of the Little Calumet River.
5. Map a tentative arrangement of water pollution monitoring stations that, if employed, would aid and abet water quality programs.

In practice, the charge proved more ambitious than time, money and expertise allowed. Item 3 proved particularly difficult to accomplish, and this report contains no information regarding quantitative or qualitative estimates of pollutants or pollutors.

The sub-committee also was hampered by a lack of proposals relating to pollution in the Schellie Report. Generally, the report, and the Corps of Engineers, regard pollution as a local problem. The following passage in the report reflects the Corps of Engineers position:

"The predominant pollution sources are combined sewer overflows and industrial waste discharges. Both Illinois and Indiana have adopted water quality standards which have been approved by the Federal Water Pollution Control Administration. Regulation SWB - 7 of the Illinois Sanitary Water Board and Regulation SPC-9 of the Indiana Stream Pollution Control Board apply to the Little Calumet River. Under these regulations, the Little Calumet River is to be suitable for Partial Body Contact recreational activity subsequent to the period allotted for implementations of the water quality criteria."

At a meeting January 27, 1970, between members of the Advisory Committee and the Corps of Engineers in Chicago, District Engineer Col. William G. Stewart observed that the Schellie Report afforded no water pollution recommendations, and that such problems are the concern of the

the local agencies.

This, in effect, meant the sub-committee was on its own to analyze and evaluate as best it could with limited resources, the quality of water in the Little Calumet River.

## II. SUB-COMMITTEE ACTIVITIES

Due to the nature of the subcommittee's responsibility, meetings were called infrequently. Members were periodically informed by mail or phone, and they supplied guidance and suggestions as needed. Copies of correspondence to members follow.

Minutes of a meeting of the Pollution Sub-Committee of the Little Calumet River Advisory Committee, held on April 17, 1970 at 10:00 a.m. in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Chairman Bryce Billings.
2. Members present: Bryce Billings, Millie Pilot, William Rhodes.  
Also present: Gregory Smutko, Jerry Frick, staff members.
3. A report was made by members of the staff in reference to a meeting of the Governor's Commission with the U. S. Army Corps

of Engineers, dated February 27, 1970. It was pointed out that the Schellie and Associates Report, subject to review by the U. S. Army Corps of Engineers, does not include pollution data in reference to the Little Calumet River Study. Such matters had been left to the discretion of the state in question to affix and enforce any water quality criteria to be utilized.

Suggestions presented were: check with the municipal and county health departments with regards to water quality and known sources of pollutors within the Little Calumet River flood plain. Is there adequate legal assistance in regards to establishment and enforcement of acceptable standards? Is there a county sewer system that will adequately alleviate the Little Calumet pollution dilemma. A further suggestion insinuated a more aggressive and positive approach by state-level planning in regards to tax-limitations and bonding powers when considering the Little Calumet River.

The next pollution sub-committee meeting has been tentatively scheduled for 7:30 p.m., May 7, 1970. The following data is intended to be completed by said date:

- (1) inventory of known sources of pollutors.
- (2) existing or proposed water pollution control devices compiled and located on work maps.
- (3) inventory estimated quantities and types of pollutants from water samples along the Little Calumet's course.

The meeting was adjourned at 11:45 a.m.

H. GERALD FRICK  
Acting Secretary

Supplementary Information for  
the Pollution Sub- Committee

It was planned that this commission conduct field trips along the river and major tributaries within the Little Calumet flood plain. These trips would be for the purpose of visual familiarization and photographic recording of actual on-site situations. On Saturday, May 16, 1970, a LPC staff member traversed the Little Calumet River and several tributaries taking photographs for high water conditions. (It was anticipated by the Indiana Department of Natural Resources, Division of Water, that the river would crest during this storm period.) - It was therefore advisable to photograph same at "high" level period and a proposed second set at a "low" level period to be recorded at a later date. Such a series indicates not only flooding situations, but also a visual water pollution condition.

While photographing the river, it was noted that there were many sites appropriate for taking water quality samples. These sites were recorded and mapped. A total of twenty-four sample-sites were selected. Of these sites, two were located on the east-arm of the Little Calumet (the portion east of the Burns Waterway - Lake Michigan confluence); one site on Deep River; two sites on Burns Ditch; three sites on the

Hart Ditch/Cady Marsh Ditch confluence and the remaining seventeen locations on the river "west-arm" (that portion west of the Burns Waterway/Lake Michigan confluence) extending west from King Drive in Gary to Burnham Avenue in Illinois. Samples were to have been made and qualitative analysis was to have been conducted by the Gary-Hobart Water Company - but the project was cancelled this week (1-5 June 1970).

In an interview with Erv Kmiecik, sanitarian of the Lake County Health Department, the following data was received.

- (1) The State Department of Health conducts a bi-monthly survey of water quality samplings on Lake Michigan and the Little Calumet River. The location of the latter is at Hohman Avenue (Hammond).
- (2) The county health department (as of July 1970) will be able to conduct tests on water samples collected within the county-- in addition the Porter County Health Department (as per telephone conversations with Robert Mefford) would be able to conduct tests on the "east-arm" portion of the Little Calumet River.

According to Mr. Kmiecik, Mr. Mefford and Mr. Keith Young, (lab superintendent at the Gary-Hobart Water Company), there are three basic tests to be performed, and they are substantially

as follows:

- (1) The DO (Dissolved oxygen); tabulated on-site; indicates the amount of oxygen available in the water sample at a specific time.
- (2) The BOD (Biochemical oxygen demand); after a five-day incubation period, a test not unlike the DO is performed and the difference between the two is the amount of basic oxygen demand by life organisms at that time and place.
- (3) The Bacteriological (fecal coliform and fecal streptococci); two forms of bacteria which are indicators of human sewage and wastes, require a sterilization and incubation period of forty-eight hours.

It was resolved that the staff could receive records of readings from the State Department of Health as sampled from the Hohman Avenue station. Same would include readings back to 1958. Mr. Kmiecik also indicated that the state would also sample water quality along the Little Calumet River from locations at Indianapolis Boulevard, Cline Avenue, Burr Street, Clark Road and Grant Street. These samples are to be tentatively taken on June 17, July 8 and July 22 and would give a "recent" DO and BOD count. The county would analyze samples along the major tributaries in reference to fecal streptococci and fecal coliform presence. Similar tests will be

made on Porter County portions by the Porter County Health Department -- this office will collect the tributary samples and the two county health departments will assist by analyzing same.

It is proposed that a map indicating existing measuring locations, sites of samples collected by this committee and preferred site locations (in the form of a recommendation to the Governor) for future pollution measuring stations. Such a map is being developed by this office.

Future interviews will include the Gary and Hammond Health Departments. The results of the sampling will be recorded and forwarded to the sub-committee members upon verification by this office.

Continuation of interpreting and recording the state's water quality standards is among the projects attempted by this staff in its charge from the Governor's Advisory Committee.

Per telephone conversation with Chairman Billings, no definite date has been assigned for the next sub-committee meeting. All members shall be advised of progress as per written communications.

H. GERALD FRICK  
Acting Secretary

The subcommittee, in studying the problems of pollution in the Little Calumet River, proceeded in a straight forward manner. First, to determine the present quality of water in the river, it was proposed that a series of samples be taken at strategic locations. Tributaries were also to be

tested. These samples were evaluated by the Lake and Porter County Health Departments, which provided continual and valuable services to the subcommittee. The following special reports are indicative of water quality in the river.

-- Porter County Health Department-Special Report\*

Coffee Creek & Indian Boundary

Road (Chesterton)

Little Calumet River &

Route "49"(Chesterton)

Little Calumet River &

Mineral Springs Rd. (Porter)

Salt Creek & Clem Road (Portage)

Willow Creek & Clem Rd. (Portage)

PC-5

PC-4

PC-3

PC-2

PC-1

NOTE: The following figures represent Total Coliform concentrations....

Station	15 July	30 July	12 August	26 August
LC-1	100,000	2,000	20,000	29,000
LC-2	100,000	64,000	420,000	300,000
LC-3	50,000	2,000	56,000	96,000
LC-4	20,000	2,000	2,000	2,400
LC-5	10,000	1,000	400	500

State standards for water quality in the Little Calumet River were promulgated in 1967, and Illinois passed a similar standards in 1968. A brief description of these standards follow:

-- Indiana Water Quality Standards

Indiana Stream Pollution Control Law Chapter 214, Acts of 1943 as amended

Subject: The formation of a stream Pollution Control Board

Regulation SPC 1R: Water Quality Standards for Waters of Indiana, dated 13 June 1967

Minimum conditions applicable to all waters at all times, at all places.

- a. no "heavy" additive to cover bottom biota
- b. no "light" additive to cover surface
- c. no additive to be obnoxious to senses
- d. no additive to be toxic to biota

Bacteria: coliform count not to exceed 5,000 as an annual average.

-- Lake County Health Department-Special Report\*

From West to East (Direction of Flow)

Cline Avenue	LC-1
Calhoun Street	LC-2
Burr Street	LC-3
Clark Road	LC-4
Grant Street	LC-5

\*The sample locations are mapped on page 13.

Regulation SPC-1R is concerned with :

- a. aquatic environment
- b. total and partial body contact recreation
- c. agricultural or stock watering
- d. industrial water supply and utilization
- e. the public water supply and food processing industry

SPC-1R also states that a bacteria coliform reading is not to exceed 1,000 as an annual average - if total body contact recreation is to be practiced. 5,000 is the maximum for partial body contact recreation.

Regulation SPC-4, 13 June 1967

Lake Michigan Open Water-coliform bacteria	
annual average maximum	200
daily maximum	2,500

Regulation SPC-5, 13 June 1967

Lake Michigan Shore Water-coliform bacteria	
(a) Maximum 1,000 coliform count	
(b) a single sample of 100,000 will result	
in an immediate investigation.	

Regulation SPC-9 13 June 1967

Little Calumet River flowing into Illinois and through Indiana - coliform bacteria maximum reading at 5,000 except during periods of storm water run-off.

#### -- Illinois Water Quality Standards

Illinois Sanitary Water Board (SWB-15)  
dated 28 June 1967 and SWB-7, dated 6 September  
1966

SWB-7 Rule, 1.03 Little Calumet River  
SWB-15 Rule, 1.04 Little Calumet River

#### 1. General Criteria

- a. no "heavy" additive to cover bottom biota
- b. no "light" additive to cover surface
- c. no additive to be obnoxious to senses
- d. no additives to be toxic to biota

#### 2. Specific Criteria\*

- dissolved oxygen content
- ph factor
- water temperature
- bacteria count

\*Note: (1) These criterion are applicable for partial body contact recreation.

(2) Only bacteria count is to be utilized in this report. As per SWB-15; Rule 1.04 is not to exceed 1,000 coliforms (from Grand Calumet River - Cal Sag Canal); or as per Rule 1.05, is not to exceed a daily average of 5,000 coliforms or annual average of 2,000 coliforms.

#### Conclusion:

Major sources of pollution in these interstate waters are industrial waste, municipal sewage and combined sewer overflows. Upon compliance with SWB-7 and SWB-15, the Water quality will be suitable for partial body contact recreation and aquatic life.

Final approval by State Water Board, 5 March 1968.

The foregoing standards as applied to Indiana, and the coliform readings below by the Indiana Stream Pollution

Control Board in 1965-1966, indicate a wide disparity between the ideal and the real.

Site	Year	Max.	Min.	Average
Little Calumet River	65	57,000,000	8,000	2,500,000
Hohman Avenue	66	1,300,000	20,000	260,000
Burns Ditch	65	600,000	1,700	56,000
Ogden Dunes	66	220,000	2,900	31,000
Burns Ditch	65	180,000	100	38,000
R. R. Trestle	66	130,000	2,200	23,000
Burns Ditch	65	120,000	2,000	20,000
Crisman Rd.	66	91,000	4,900	16,000
Burns Ditch	65	460,000	6,900	94,000
Port. Boat Yd.	66	150,000	7,000	43,000

Unfortunately, state test results more recent than 1966 are not available, and the effect of regulations on water quality is difficult to determine. However, the 1967 "Report on Water Quality Criteria and Plan For Implementation," published by the Stream Pollution Control Board, indicates that the following action is necessary by municipalities in the region to improve water quality. Not all the municipalities release sewage effluent into the Little Calumet River.

- (1) Porter must provide a treatment facility as soon as practicable.
- (2) Hammond and Valparaiso are to expand existing treatment facilities.
- (3) Advanced treatment will be necessary at East Chicago, Gary, Hammond and Michigan City - and a forecast to

include Crown Point, Hobart and Valparaiso.

- (4) Incorporated areas, e.g., Beverly Shores, Dune Acres, Long Beach, Michiana Shores, New Chicago, Ogden Dunes and Pines are to provide treatment of water resources in the near future.
- (5) Hammond, Whiting, Gary, East Chicago, and Michigan City are to provide disinfectant and control pollution from storm-water overflows.
- (6) Secondary treatment is required at all new installations.

The results of the subcommittee's activities produced the expected conclusion. Pollution of the Little Calumet River primarily originates from animal wastes. A total lack of sewage treatment in some densely populated residential areas, and inadequate sewage treatment in others, account for the major share of pollution in the river. Agricultural, and, to a lesser degree, industrial areas, also contribute polluting substances to the river.

### III. SUMMARY AND CONCLUSIONS

Water pollution is a complex problem--one for which the Corps of Engineers disclaims any responsibility to study. Thorough sewage treatment systems, which many communities lack, cost a great deal of money. Yet sewage must be treated, even if the effluent doesn't need state standards. In short, some treatment is better than none. At present, laws are being used to pressure municipalities and industries to install improved treatment facilities. Strict enforcement of pollution regulations would close down some sewage treatment plants and industries and result in a completely unacceptable situation--one that would be worse than living with

the current level of pollution for a few more years. It is a case of give and take in the attempt to reach an agreeable end result with the least burden on any one segment of society.

Still, the problem is critical, and the sense of urgency in solving it must not be lost. The two special reports based on Lake and Porter County Health Department samplings indicate significant coliform counts in the Little Calumet River. State water pollution control regulations have had little effect on water quality, it appears, yet these standards, if enforced, would insure water of a quality to sustain aquatic life and provide total body contact recreation. Both state and county tests indicate that the major source of pollution of the Little Calumet River is residential and agricultural areas, rather than industries.

#### IV. SUBCOMMITTEE RECOMMENDATIONS:

It is a consensus of opinion by members of this subcommittee that the following Recommendations be considered for inclusion in improvement proposals for developing the Little Calumet River.

1. To conduct a complete, in depth study of water pollution of the Little Calumet River and its associated tributaries. (Such a study to be performed by an interested party, or parties, possessing the needed expertise to analyze existing conditions and offer workable solutions. Neither

time, funding or professional expertise were available for in depth study by this subcommittee in reference to water pollution. The ambitious program as per this subcommittee's original charge, was unfortunately beyond its capabilities. Furthermore, this subcommittee can only indicate sources of water pollution, yet does not possess the knowledge to combat same. Pollution of the waters of the Little Calumet River should be understood by all - for all are involved.)

2. To create constructive liaison and coordination with the Operation Little Calumet River Commission (of the Illinois portion of the Little Calumet River.) (Because the Little Calumet River knows no boundary, it is advisable that any study regarding same should include all interested and affected concerned.)
3. To appraise the effectiveness of existing water quality legislation. (The consensus of opinion by the majority of this subcommittee is that the water quality criteria are adequate; however, analysis indicate pollution exists. Why?)
4. To create a Little Calumet River Authority whose responsibility would include the enforcement of the existing water quality standards as established by the Indiana Stream Pollution Control Board. (This is not an attempt to usurp the enforcement powers of the Stream Pollution Control Board or of various other governmental agencies, nor does this subcommittee imply that existing enforcement powers are disinterested, but rather that because the major contributors

are either municipal or residential in nature same can be more effectively controlled by a "local" entity).

5. To establish additional water quality monitoring stations on the Little Calumet River. (As this report notes, only five water quality monitoring sites are presently existing. It is deemed advisable that additional stations be located at various points along the flow of the river thereby serving as an indicator of water pollution sources.)
6. To expand the scope of water quality monitoring stations to include the entire Indiana portion of the Lake Michigan Basin. (This action would unify water quality control throughout the Little Calumet River Watershed. As a result improved river water quality would not be lowered as a result of low quality tributary effluents.)
7. To investigate alternate ways of testing water quality that would complement existing methods, which could include a local monitoring laboratory. (Water samples subject to analysis would be less susceptible to various mishaps that are more apt in longer haul transportation).

8. To establish a public awareness program designed to explore the intricacies of water pollution and its effect on the total ecological environment. (Such an ambitious program would utilize the available news media to relate the water pollution dilemma to the local populous. Youth groups, conservation groups and the like could coordinate activities with the various interested municipal and industrial entities. A cooperative, coordinated effort is required if improved water quality is to be achieved.)

LITTLE CALUMET RIVER  
RECREATION AND  
RECREATIONAL  
NAVIGATION  
SUBCOMMITTEE REPORT

ERNEST DAVIS  
Chairman

JAMES RANFRANZ  
Co-Chairman

H. GERALD FRICK  
Staff

MEMBERS:

HON. WALTER J. ROORDA

Z. JACK CORNEA

DAVID C. JOHNSON

PHILIP JAYNES, JR

RODNEY DE CAMP

## I. Introduction:

On the 8th of January 1970, this sub-committee met for the first time to consider the recreation and recreational navigation potential of the Little Calumet River and to analyze the U.S. Army Corp of Engineers Preliminary Report. At this meeting the sub-committee determined its course of action and responsibilities. The following is the charge to this sub-committee:

- a. Locate all existing recreational facilities adjacent to the Little Calumet River.
- b. Critique all known proposals pertaining to the Little Calumet River, i.e., to the best of this sub-committee's combined talents.
- c. To advise the Governor's Advisory Committee as to the Recommendations proposed by this sub-committee.

### NOTE:

All sub-committee meetings were held in the Conference Room of the Lake-Porter County Regional Transportation and Planning Commission (LPCRTPC), Crown Point, Indiana. All meetings were scheduled at the hour and date most convenient to the majority of the participating sub-committee members. In subsequent paragraphs are found: sub-committee activities, minutes, topics discussed, actions taken, summary and lastly Recommendations drawn from a consensus of opinion provided by available expertise.

## II. Sub-committee Activities

The following paragraphs are reproductions of the minutes forwarded to all members assigned to this sub-committee. It must be hereby noted that not all topics discussed will appear in the sub-committees recommendations. Conversely, items presented in the Recommendations Section may not appear in the sub-committee's minutes. Several Recommendations were presented as a result of critiques of other related reports pertaining to the recreation and recreational navigation potential on the Little Calumet River.

Minutes of a meeting of the Recreation-Recreational Navigation Sub-Committee of the Little Calumet River Advisory Committee held on January 12, 1970, at 7:00 p.m., in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Chairman Ernest Davis.
2. Members present:

Ernest Davis
James Ranfranz
Philip Jaynes
Jack Cornea
Jody Katz
Greg Smutko
Charles McAllister
3. The committee reviewed the charge to the committee and background material affecting the development of the Little Calumet River.

4. The following were general areas of discussion suggested by various members of the sub-committee and/or staff:

- (1) Expand the responsibility of the committee to inventory historical data as it relates to the Little Calumet River Basin.
- (2) Tend to examine possibilities of small ponds connected or not connected to the river itself (retention basins).
- (3) Examine the possibilities of forwarding to the Indiana Highway Commission the concept of bridge construction in such a fashion as to facilitate recreational development both in terms of use of adjacent excavation sites and construction of a span sufficient to allow excess under or through the bridge.
- (4) Express concern for water pollution and water quality as it relates to Recreation and Recreational Navigation on the Little Calumet River.
- (5) Express concern for water quality in relation to all forms of biota and recreational activities.
- (6) Express concern for retaining natural areas of the Little Calumet River not to be developed for any active recreational form.
- (7) Express concern for notifying and/or involving the Izaak Walton League so as to forestall their concern for recreational and flood control improvements.
- (8) Point out to Governor Whitcomb all possibilities associated with private enterprise developments and active and passive recreational possibilities.
- (9) Particular emphasis to expanding a corridor of study along the Little Calumet as regards to inventory open space facilities to at least a mile.
- (10) Urge the Corps of Engineers to submit copies of the report prepared by Kenneth L. Schellie and Associates dealing with the recreation and recreational navigation aspects of the Little Calumet River.

It was generally agreed that considerable work would have to be done by the staff of the Regional Planning Commission including the following:

- (1) Preliminary generalized historical data to be prepared .
- (2) An examination be made of the recent report relative to boat ownership prepared by the Indiana Department of Natural Resources.
- (3) Contact the Gary Parks Department to ascertain their knowledge of boat ownership.
- (4) Map open lands and tabulate the acreages.
- (5) Inventory constraints now existing to recreational navigation along the channel of the Little Calumet River.

It was agreed that the next regular meeting of the sub-committee be held on Tuesday, February 3, in the office of the Regional Planning Commission at 7:30 p. m.

The Regional Commission staff advises committee membership of a potential meeting with the Army Corps of Engineers in Chicago in the office of the District Engineer to attempt to obtain copies of the report turned out by Schellie and Associates and

other information as is necessary in the conduct of this study. That meeting - a date yet to be determined- will be held on either January 26, 27 or 28. Committee chairman will be notified.

Minutes of a meeting of the Recreation- Recreation Sub- Committee of the Little Calumet River Advisory Committee held on April 15, 1970, 7:30 p.m. in the Conference Room of the Regional Planning Commission, Crown Point, Indiana.

1. The meeting was called to order by Chairman Davis.
2. Members present:

Ernest Davis
Hon. Walter Roorda
Philip Jaynes, Jr.
H. Gerald Frick
3. Lake-Porter County Regional Transportation and Planning Commission staff representative Frick reported on the handout data compiled by a preliminary draft of the Schellie Report by the U.S. Army Corps of Engineers.
4. Topics pertaining to the charge to this sub-committee were aired. Conversations relating to Indiana and Illinois cooperation in regards to the Little Calumet River studies: a "green-belt" theory, continuous from the (proposed) National Lakeshore Park to the Illinois state line; perhaps consider the project as a two-phase problem, i.e., consider the "west-arm" and the "east-arm" as separate problems necessitating separate solutions; a concept of creating

a TVA - like situation whereby a local agency could control activities associated with the water resources of the Upper Mississippi River Basin; potential development of areas adjacent to river/highway department could prove beneficial. Further ideas viewed were to rezone the needed land areas adjacent to the river and develop same as state parks.

5. Questions raised to be answered by the next sub-committee meeting are:

- (1) Inter-local governmental agencies to aid in recreation.
- (2) Can State parks be located within the realm of this projects jurisdiction.
- (3) Can the Indiana Department of Highways aid and abet the recreational development of this project.
- (4) Is there a possibility of contacting the Department of Commerce to aid the Advisory Committee in its charge by the Governor.
- (5) Contact Mr. Brent Snodgrass - Public Relations for Bethlehem Steel to determine what course of action is planned along the "east-arm" of the Little Calumet River.
- (6) Contact Mr. Roth (U. S. Army Corps of Engineers) with regards to multi-use, all-seasonal potential of the Little Calumet River projects in lieu of the Schellie Report.
- (7) The possibility of utilizing the Department of the Interior to aid and abet this project on a continuing basis.

- (8) Considering the project as a two-phase project, i.e., the "east-arm" and the "west-arm" of the Little Calumet River.
- (9) The possibility of the LPCRTPC to organize the operation and maintenance of this project -- a recommendation was prepared stipulating that implementation be returned to this - or a similar committee, to insure action.

6. The meeting was adjourned at 10:30 p.m. The next scheduled meeting is at 7:30 p.m. on the 12th of May, 1970.

Minutes of a meeting of the Recreation-Recreational Navigation Sub-Committee of the Little Calumet River Advisory Committee held on May 12, 1970, at 7:30 p.m. in the Conference Room of the Regional Planning Commission, Crown Point, Ind.

- 1. The meeting was called to order by Chairman Davis.
- 2. Members present were: Ernest Davis  
Hon. Walter Roorda  
Philip Jaynes  
H. Gerald Frick  
James W. Davis  
(guest)
- 3. Staff member Frick related to the minutes of the previous meeting.

- 4. A map presentation was reviewed regarding the proposed recreation "node" development by Schellie and Associates of Clyde E. Williams, Inc.
- 5. Further reference was made concerning the various other reports available to members of this sub-committee, i.e.,
  - (1) The Indiana Department of Natural Resources report on "Benefits of Recreational Facilities of the Little Calumet River";
  - (2) The Little Calumet River Design Study, A Regional Planning and Flood Control Project;
  - (3) An Environmental Resources Inventory conducted by this Commission;
  - (4) A report made by the Lake Michigan Region Planning Council and;
  - (5) Various ichthyological reports by members of the Indiana Department of Natural Resources, Division of Fish and Game. It was noted that portions of the preceeding were to be analyzed by this sub-committee and appropriate sections to be contained within the report to the Governor.
- 6. New items discussed were:
  - (1) Advisability of purchasing undeveloped and unattached lands within the flood plain of the Little Calumet River;
  - (2) The addition of the newly acquired land to insure a continuous "green belt" effect thereby providing a functional and aesthetic environment.

(3) The availability of "701 funds" for various areas within the flood plain which are in the jurisdiction of local sanitary districts.

7. The discussion also included pollution within the Little Calumet River. It was noted that according to all known sources that residential and municipal factions contribute the largest percentage of polluted effluents into the Little Calumet River.

8. Several recommendations were proposed and accepted by the sub-committee members present. Same were presented at the May 13th status report of the Governors' Advisory Committee at Indiana University (Northwest campus). Said recommendations, if acceptable by the Advisory Committee, will be included in the Governor's Report. In essence, the recommendations are substantially as follows:

- (1) Acceptance of the Schellie Report as it pertains to recreation and recreational navigation proposals;
- (2) Expand the scope of the recreational potential to include the acquiring and development of the present undeveloped areas within the flood plain of the river;
- (3) The utilization of the numerous existing borrow pits in close proximity to the river be included within the realm of the Schellie Plan - same presently is an indicator of improved water quality - such an improved water quality would permit "total water contact" form of recreation;
- (4) It was further recommended that power craft be restricted to the river and adjoining proposed marinas - and that the "improved" borrow pits be reserved for row or electric powered craft;
- (5) A recommendation that an auto-accessible park area be developed to facilitate "non-local" persons transversing the inter/intra state transportation network;
- (6) The expansion of all-seasonal, multi-purpose outdoor recreational facilities to include the anticipated demands by the winter recreation enthusiasts with a special emphasis on snowmobiling;
- (7) The incorporation of a historical background development section be included within the report to the Governor - such a section would denote the importance of the preservation of the prominent items of a natural and/or historic interest within the Little Calumet River region.

Chairman Davis terminated the meeting at 10:30 It was agreed that the next meeting be tentatively scheduled for late June and at such a time a rough-draft of the final report be presented for review. Staff representative Frick was directed to contact all members upon compiling this data and at such a time the sub-committee would meet to determine further action to be considered.

Supplementary Information for the Recreation-  
Recreational Navigation Sub- Committee

Subject: Discussion with Mr. Z. Jack Cornea,  
Superintendent of Lake County Park  
Department, held on June 3, 1970.

Several questions pertinent to recreation and/or navigation development along the Little Calumet River have been aired on several occasions during recent sub-committee sessions.

On June 3, a meeting with Mr. Z. Jack Cornea was held, with the following topics discussed:

- (1) The concept of thinking of the Little Calumet River as a two-phase project with special considerations concerning recreation and recreational navigation unique to each. The "east-arm" i. e., that portion east of the Burns Waterway and Lake Michigan confluence, to be "preserved" in its present state and be developed as a self (or near self) sustaining hatchery for Coho salmon, thereby affording Indiana to assist in reverting Lake Michigan to a sport and commercial fishery power once again. The "west-arm", i. e., that portion west of the Burns Waterway and Lake Michigan confluence to the Indiana-Illinois state line, be developed as an all-seasonal multi-purpose outdoor recreational facility.
- (2) A continuous "green belt" effect from the "proposed" National Lakeshore Park west to the Indiana-Illinois state line is both desirable and advisable. Such a condition would improve not only the physical make-up of the area but also add to the aesthetic

beautification so desperately needed throughout the area.

- (3) The Division of Water Resources, Indiana Department of Natural Resources can condemn an area, thereby affording the opportunity to claim same for improvement of the Little Calumet Area. It is of paramount importance to acquire this available land as soon as possible, thereby reducing the possibility of speculative cost reaching unattainable proportions.
- (4) The State Department of Natural Resources can establish a state park anywhere in the state; however, due to jurisdictional problems, this approach is not practiced - but is available.
- (5) It was discussed that very little monies, either federal or local, are available to combat water pollution- as a result, the water contact recreational potential of the Little Calumet River is, and will continue to be, in jeopardy unless the present methods of pollution control are improved.
- (6) Recreational development of existing "borrow pits" was discussed as well as the involvement by the State Highway Department to develop areas adjacent to highway and river junctions. The idea that the state government should stimulate, not retard private enterprise development along the river was also stressed.

Two additional recommendations were proposed during this interview, i. e. :

- (1) The purchase of the presently "unattached" areas along the Little Calumet River by

either county or municipalities of concern, thereby insuring the availability of same for future river improvement and development;

(2) The inclusion of the major tributaries e.g., Cady Marsh Ditch, Hart Ditch, Burns Ditch, Deep River and Turkey Creek in regards to recreation and navigational development of the river flood plain - thereby insuring uniformity of development both physically and aesthetically.

The interview was terminated on the idea that final operational authority lies in the realm of an inter-local agency or commission; with jurisdiction over construction, operation and maintenance of the entire river project. Difficulty is anticipated due to inter-state, dual-county and multi-municipal jurisdictional factions already in existence.

This notice has been mailed to all members of this sub-committee. No definite date has been established for the next sub-committee meeting, same is tentatively scheduled for later this month upon correspondence with staff representative and Chairman Davis.

### III Summary - Analysis of the U. S. Army Corps of Engineers Report in regard to recreation and recreational navigation considerations.

This sub-committee concludes that:

- A. Within the short span of time provided to study the available reports pertinent to recreation and recreational navigation potential, and
- B. Within the realm of limited expertise and funds provided; that the "Schellie Report" has indicated to be economically feasible to provide recreation and recreational navigation opportunities on the Little Calumet River in conjunction with flood control.

Benefits resulting from river improvements in accordance with the application of the Schellie Report are quite broad in scope. The project becomes feasible through the reduction of flood damage, increased land evaluation and bridge improvements and the addition of recreation and recreational navigation considerations.

Intangibles such as the reduction of human suffering and death, the elimination of filth and disease associated with flooding, and the increase in local economy due to the improved physical environment and mental attitude of the local populous are expected to improve. Anticipated too, is an increase in population, per capita income, leisure time, ease of travel and an expansion of social awareness and involvement in environmental improvement: result; demands upon our "total" natural resources at an unprecedented pace!

A favorable benefit: cost ratio of 3 - 1 (\$) warrants the acceptance and adoption of the Schellie Report in general, and the recreation and recreational navigation proposals in particular. The acceptance

of the Schellie Report as a feasibility study would, in the opinion of this sub-committee, allow serious consideration of a wide variety of recreation and recreational navigation facilities so desperately needed to today's demands and tomorrow's necessities.

#### IV Sub-Committee Recommendations:

It is a consensus of opinion by members of this sub-committee that the following Recommendations be considered for inclusion in improvement proposals for developing the Little Calumet River.

1. To accept the Schellie Report as a feasibility study for a basis of recreation and recreational navigation improvements.
2. To consider the following possibilities in further refinement of the feasibility study i.e., the Schellie Report, to include:
  - a. The development of the "east-arm" portion of the Little Calumet River as a Sport Fishery with a special emphasis on salmonoide species.
  - b. A recreational "Green-Belt" corridor connecting the National Lakeshore Park with the Little Calumet River recreational corridor, avoiding confrontation with the Port-Steel complex.
  - c. The development of the Salt Creek flood plain into a recreational reservoir for small boating, swimming, skiing and fishing. (In addition, the development

of the Deep River - Lake George - Turkey Creek waterway should be developed as a "put and take" Sport Fishery and a basis for a "total body-contact" recreational resource. The development of the Cady Marsh - Hart Ditch waterway would reduce the conflicting demands presented by the local populous.)

3. To utilize the numerous borrow-pits within the flood plain. Such facilities could be developed into the overall improvement project. (Due to the presence of certain less tolerant aquatic biota, the present water quality is of a high standard, thereby affording a Sport Fishery and "total body-contact" recreational potential. In addition, several borrow-pits could be utilized as marinas serving Lake Michigan oriented water craft.)
4. To impose a maximum speed limit on watercraft on the upper reaches of the Little Calumet River - "west-arm". (It is feared that high-powered watercraft operating in this area would eliminate the biota on or near the bottom of the river. In addition, the ensuing wave-action at the shoreline, if not re-enforced with costly rip-rap, would result in bank erosions as well as injecting suspended particulate matter into the water flow which not only increases water pollution but also risks the destruction of the shoreline ecosystem so necessary to bridge the aquatic and terrestrial environments.)
5. To develop an automobile accessible park area available for non-local persons traversing the state. (Such an area would add revenue to the state's economy by creating a "tourism" atmosphere in industrial northwest

Indiana - in addition to providing a rendezvous area for visitors to the anticipated National Lakeshore Park.)

6. To expand the outdoor recreational facilities to all-seasonal facilities. (These facilities would incorporate the increased emphasis on winter-oriented recreation. Tobogganning and skiing on the slopes bolstered by snowmobiling will lift local residents out of the "winters' doldrums". Further consideration is afforded by the possibility of creating an annual "Snow Mobile Derby" taking note of the expected sound-pollution created by concentration of participants.)
7. To incorporate the development of unique historical and ecological areas within the authority of this project. (Such areas could relate to human development within the areas as well as providing an educational base for scientific studies.)
8. To begin acquisition of available land immediately. (Such action would insure a land-use to be compatible with the river improvement project. Same action would retard large scale land speculation within the area of this report.)
9. To form a new agency to continue studies on the improvement, development, and utilization of the Little Calumet River. (Such an agency would be staffed with personnel possessing the necessary expertise as well as receiving funds from federal and various local sources.

